



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Suhrbier, *et al.*

Serial No.: 09/576,101

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For: POLYEPITOPE VACCINES

Group Art Unit: 1644

Examiner: Huynh, P. N.

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Appendix C

CLEAN COPY OF AMENDED CLAIMS OF USSN 09/576,101

14. A polynucleotide comprising a nucleic acid sequence encoding a plurality of cytotoxic T lymphocyte (CTL) epitopes wherein each CTL epitope is substantially free of peptide sequences naturally found to flank that CTL epitope and wherein at least two of the plurality of CTL epitopes are contiguous or spaced apart by an intervening sequence that does not comprise a methionine.
15. The polynucleotide of claim 14, wherein the CTL epitopes are contiguous.
16. The polynucleotide of claim 14, wherein said polynucleotide encodes at least three CTL epitopes.
17. The polynucleotide of claim 14, wherein said polynucleotide encodes four CTL epitopes.
18. The polynucleotide of claim 14, wherein said polynucleotide encodes nine CTL epitopes.
19. The polynucleotide of claim 14, wherein said polynucleotide encodes ten CTL epitopes.
20. A vector comprising the polynucleotide of claim 14.

21. The vector of claim 20, wherein said vector is selected from the group consisting of a viral vector and a virus-like particle (VLP).
22. The vector of claim 21, wherein said viral vector is a vaccinia vector.
23. The vector of claim 21, wherein said viral vector is an avipox virus vector.
24. The vector of claim 21, wherein said vector is a VLP.
25. The polynucleotide of claim 14, wherein at least one of said CTL epitopes is derived from a pathogen.
26. The polynucleotide of claim 14, wherein said polynucleotide comprises a nucleic acid sequence encoding CTL epitopes derived from a plurality of pathogens.
27. The polynucleotide of claim 25, wherein said pathogen is selected from the group consisting of Epstein Barr Virus, Influenza Virus, Cytomegalovirus, Adenovirus and HIV.
28. The polynucleotide of claim 14, wherein at least one of said epitopes is derived from a tumor protein.
29. The polynucleotide of claim 14, further comprising a nucleic acid sequence encoding a T helper cell epitope, a B cell epitope, or a toxin.
30. The polynucleotide of claim 14, further comprising a nucleic acid sequence encoding a T helper cell epitope.
31. The polynucleotide of claim 14, further comprising a nucleic acid sequence encoding a B cell epitope.

32. The polynucleotide of claim 14, further comprising a nucleic acid sequence encoding a toxin.
33. A nucleic acid vaccine comprising a polynucleotide comprising:
- (i) a nucleic acid sequence encoding a plurality of cytotoxic T lymphocyte (CTL) epitopes wherein each CTL epitope is substantially free of peptide sequences naturally found to flank that CTL epitope and wherein at least two of the plurality of CTL epitopes are contiguous or spaced apart by an intervening sequence that does not comprise a methionine; and
 - (ii) an acceptable carrier.
34. The nucleic acid vaccine of claim 33 wherein the CTL epitopes are contiguous.